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(54) **Tamper-indicating means for a container**

(57) A container (1) having an upwards facing opening with a surrounding edge and flange (10) means arranged in the vicinity of the container edge, said flange means adapted to cooperate with a lid (40), said lid having an edge which can engage said flange means to provide a closed container. The container comprises

at least one tool arranged at the container edge and comprising a lid-engaging surface for releasing the lid when mounted on the container, said tool comprising a bracket (20) hinged to the container, the bracket being arranged such that a pivot movement outwards from the container results in the lid-engaging surface being moved outwards thereby lifting the edge of the lid outwards in the region of the tool when the lid is mounted, thus facilitating opening of the container, and

a tamper-indicating means for indicating that the bracket has been pivoted outwards.

The tamper-indicating means comprises an indicator member (30) arranged to cover at least a portion of the bracket in a non-engaging manner, said indicator member being attached to said container and configured to break or deform when the bracket is moved outwards.

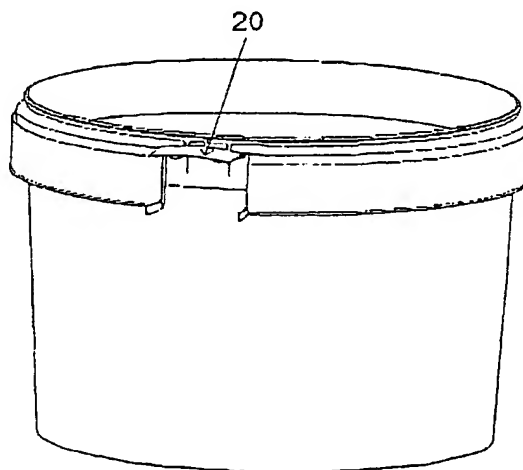


Fig. 4

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Description

[0001] The present invention relates to means for indicating that an opening tool has been used. Especially, the present invention relates to containers adapted to be used with a snap-on lid and an integrated tool for facilitating opening of the lid such as defined in the preamble of present Claim 1.

[0002] Containers of moulded resilient plastic materials are convenient, economical and thus widely used. The lid and container combination may be made reusable whereby the lid may be replaced and removed again and again after the first opening. Although reusability is convenient for the user, there is a risk that tamperers or mishaps may lift the lid, contaminate or remove some of the contents, and replace the lid without leaving visible evidence of removal, unless provision is made to indicate otherwise. Thus the provision of tamper-indicating means for indicating that the lid has been partly or fully removed from container has been desirable in order to protect the consumer from buying a product which is not fully fresh as when firstly sealed. Accordingly various kinds of tamper-indicating containers have been proposed. One type has a seal bridging adjacent portions of the lid and the container to indicate prior removal of the lid. Other types have additional parts which have to be removed before opening of the lid is possible. Still other types have the lid or container formed so that integral portions thereof will break when lid is removed from the container.

[0003] A widely used type of containers has a snap-on lid, such containers being known from for example EP-A-0 243 545 or US-A-4 027 775, the latter also disclosing the incorporation of a tamper indicating member in the form of a circumferentially arranged guard flange. Such containers are typically used to pack, for instance, products such as paints and adhesives.

[0004] A special type of containers comprises a tool for lifting the edge of the lid at a point thus facilitating removal of the entire lid. Such a container is known from for example US-A-3 753 512.

[0005] From EP-A-0 565 967 is known a container of the snap-on type, comprising both lid-removal tool as well as tamper-indicating means. More specifically, this document discloses a container with a circumferentially arranged rim protruding outwards from the container and having a cut-out gap wherein a portion of a hinged lifting bracket is positioned bridging this cut-out gap. In order to provide a tamper-indication a number of breakable bridges are arranged between the mentioned portion of the tool and the rim. As the bracket is hinged to the container inwards of the bridges, lifting of the tool will result in displacement of the interconnected portions and the bridges will break thereby indicating that the opening tool has been in use at least once and thereby that the lid has been removed.

[0006] However, the tamper-indicating arrangement or seal known from EP-A-0 565 967 has a number of

drawbacks. Due to the specific construction with a relatively long, freely extending latch member inadvertent lifting of this latch member may cause the bridges to break thus resulting in an indication that the lid has been opened despite this may not be the case. Similarly, in order to provide a tamper-indicating seal which does not necessitate too much effort to break, a number of smaller bridges are provided each being relatively easy to break; however, in the case where the latch member inadvertent is lifted, one or more, but not all, of the bridges may break which at a first glance may give the impression that the seal has been broken and the lid opened. Furthermore, when the container actually has been opened, it may be difficult to see at a quick glance that the bridges are broken.

[0007] Further, due to the specific arrangement of the bridges, a mould requiring a moveable tool part has to be used, this resulting in higher tool costs as well as a slower moulding process.

[0008] It is accordingly the object of the present invention to provide a container with a lid-removal tool and a tamper-indicating means which overcome one or more of the above identified drawbacks.

[0009] In a first aspect of the present invention, a container is provided as defined in Claim 1. By providing a tamper-indicating member arranged to cover at least a portion of the bracket a simple moulding tool comprising only two non-moveable parts can be used. Further, by arranging the tamper-indicating member across the bracket, an easy to detect breakage or deforming of the member is achieved.

[0010] In a preferred embodiment the bracket member comprises a downwards oriented gripping member with an outwards directed surface, the indicator member being arranged across this surface.

[0011] Advantageously the indicator member is arranged over the lower free end of the gripping member, this providing both protection against inadvertent movement of the bracket during, for example, handling and, on the other side, a proper indication that the bracket has been moved just slightly.

[0012] By arranging the bracket between members extending downwards along side edges of the gripping member at least as far as the lower edge of the gripping member, a further protection against inadvertent manipulation of the bracket is provided. These members may advantageously be part of a circumferentially arranged downwards facing skirt having a cut-out portion to accommodate the bracket and the indication member may be attached at two ends thereof to these members.

[0013] Advantageously the indicator member is provided with a weakened area at which point breakage will take place.

[0014] When the bracket and the indicator member are moved outwards for the first time and the hinge portions are plastically deformed, this will result in a tendency that these element will not fully return to there initial position, this indicating that the container has

been opened.

[0015] However, in order to provide an even better visual indication that the bracket has been moved, additional means may be provided which helps one or both ends of the broken indication member to permanently protrude outwards, which may be accomplished by either a bracket member which resists to entirely return to its initial position when the lid is replaced, this preventing the broken indication member to fold flat across the bracket, or by providing a hinge-area of the indication member which deforms to such a degree when bend outwards that the indication member can only with difficulties fold flat against the bracket member when first lifted away.

[0016] If an indication member is used which is attached at only one end, then it is important, that it cannot fold flat again.

[0017] Further advantages will become apparent from the following description and the accompanying figures in which:

Fig. 1 is a container according to the invention with a lid mounted and in its initial state with an unbroken indication member extending across the bracket member;

Fig. 2 is the same container as in Fig. 1 in which the indication member has been broken and partly turned outwards;

Fig. 3 is the same container as in Fig. 2 in which both ends of the indication member have been turned outwards;

Fig. 4 is the same container as in Fig. 3 in which the lid-lifting bracket-tool has been pivoted out- and upwards;

Fig. 5 is a vertical section (with the container arranged on a horizontal surface) across the bracket area of Fig. 1;

Fig. 6 is a vertical section across the bracket area corresponding to Figs. 2 and 3; and

Fig. 7 is vertical section across the bracket area corresponding to a position of the bracket intermediate Figs. 3 and 4.

[0018] As shown in the drawings, the container 1 is of general pot-shaped form having a continuous sidewall 3 of circular cross-section, but could also be generally oval or rectangular or of any other form. The container has an upper opening with a lid 40 mounted. At the upper edge of the container facing downwards a circumferential skirt 10 with a downwards pointing free edge is arranged. The skirt has a gap in which a bracket 20 is located, and a bridge-like indicator member 30 arranged

across the bracket in a non-engaging manner and attached at the ends 31, 32 thereof to the edges 12 of the skirt portions facing the bracket. The bracket is in its resting position when the lid is fully engaged and in its initial position before being used for the first time. The indicator member is preferably formed integrally with the container but could also be a separate part which could be attached by, for example, ultrasonic welding or adhesive, whereby an indicator member of a different material as compared with the container could be used.

[0019] The illustrated skirt has, apart from the above described gap, a constant cross-section but could have other functional details such as further cut-out portions or a pair of holes for mounting a handle. Supporting members, not illustrated may be arranged between the wall 3 of the container and the inner surface of the skirt.

[0020] Turning to Fig. 2, the drawing illustrates that the indicator member has been broken at a point between its ends of attachment to the skirt with a first part 34 protruding outwards from the container and a second part 35 in its initial position. The indicator member may be broken by either directly gripping the indicator member itself or indirectly by gripping the bracket to force it a outwards direction. Fig. 3 illustrates both portions of the broken indicator member pointing outwards. The indicator is preferably provided with a line or a point of weakened strength in order to facilitate breakage. The point of breakage may take place either at a point of attachment to the container or at a position in between. It should be secured that the indicator member will break at only one point. Turning to Fig. 4, the drawing illustrates the bracket pivoted outwards and upwards away from the container to lift an edge portion of the lid. In the drawing it is not visible that the edge of the lid has been lifted.

[0021] Turning now to Figs. 5 to 7, the detailed construction and function of an embodiment of the present invention will be described. As seen in Fig. 5 the container wall 3 has an upper edge with an outwards protruding flange 4 for engagement with the lid 40. The lid has a circumferentially arranged edge portion 42 with a downwards oriented free edge. The edge portion has engagement means 43 and 44 arranged at the inner surface thereof for cooperating engagement with the upper edge of the container and with the flange 4. The downwards protruding flange engages the inwards upper surface of the container wall 3 to properly position the lid on the container and to provide a seal between the container and the lid. On the inner surface of the edge portion 42 of the lid is arranged an inwards pointing gripping flange 44 which grips below the flange 4 of the container in a snap-on fashion in which the flexible edge portion 42 is firstly forced outwards when the lid is placed for thereafter resiliently to flex inwards as the lid is pressed downwards relative to the container. As illustrated the gripping means does not necessarily have to engage container flange with the lid fully pressed down into engagement with the container.

[0022] The bracket comprises an upper lid engaging portion 22 hinged at 23 to the container and a lower gripping member 26 extending downwards. The bracket may be mounted directly on the outer wall surface or may be mounted on a flange 24 extending outwards from the container wall. The lower portion of the lid engaging portion 22 is offset inwards relative to the upper portion of the gripping member to provide a rim 27 against which the free lower edge of the lid seats. Also the skirt 10 may be provided with such a seating area for the lid. The bracket has on its inner surface one or more downwards extending reinforcing ribs serving both to prevent flexing of the gripping member when lifted but also to prevent the bracket to be pressed further inwards relative to its resting position.

[0023] Extending across the lower free edge 21 of the gripping member 26 is arranged the bridge-like indicator member seen in its initial unbroken state in Fig. 5. In the illustrated embodiment is the indicator member arranged with its lower edge extending further downwards as compared with the free edge 21 of the gripping member, this serves to better protect the gripping member against inadvertent lifting and also secures that the indicator member is broken before any movement of the bracket outwards takes place.

[0024] Fig. 6 illustrates the situation of Figs. 2 and 3 with a broken portion 34 of the indicator member 30 protruding outwards from the container, and Fig. 7 illustrates the situation where the bracket has been pivoted outwards lifting the edge portion 42 of the lid out- and upwards to thereby free the gripping flange 44 from the container flange 4 thereby facilitating lifting away the lid from the container. When the lid is mounted again the situation is substantially as illustrated in Fig. 2, however, due to deformation of the hinge 23 or due to specific other means adapted for this purpose, the bracket may have a tendency not fully to return to its initial position when the lid is mounted, this making repositioning of the broken or bent indicator member difficult. Indeed, the bracket member itself will always have a tendency to stand out a little from the container due to plastic deformation in the hinge area.

[0025] In the illustrated embodiment the gripping portion of the bracket as well as the skirt are shown with outer surfaces facing substantially perpendicularly away from the wall of the container, however, the outer surfaces could also be arranged inclined facing up- and outwards or down- and outwards, or could even be facing substantially upwards.

[0026] The illustrated container-lid combination is of the snap-on type, however, both the lid-lifting bracket arrangement as well as the tamper indication means could also be used with a container with a lid in frictional engagement with the container.

[0027] The present container is preferably manufactured in a moulded plastics material. Depending on the method of manufacturing, different material could be used for the different parts of the container as well as

for the lid.

Claims

1. Container (1) having an upwards facing opening with a surrounding edge and flange means (4) arranged in the vicinity of the container edge, said flange means adapted to co-operate with a lid (40), said lid having an edge (42) which can engage said flange means to provide a closed container, the container comprising:

at least one tool arranged at the container edge and comprising a lid-engaging surface (22) for releasing the lid when mounted on the container, said tool comprising a bracket (20) hinged to the container, the bracket being arranged such that a pivot movement outwards from the container results in the lid-engaging surface being moved outwards thereby lifting the edge of the lid outwards in the region of the tool when the lid is mounted, thus facilitating opening of the container, and

a tamper-indicating means (30) for indicating that the bracket has been pivoted outwards,

characterized in that said tamper-indicating means comprises an indicator member (30) arranged to cover at least a portion of the bracket in a non-engaging manner, said indicator member being attached to said container and configured to break or deform when the bracket is moved outwards.

2. Container as defined in Claim 1 characterized in that the indicator member is attached to the container allowing the broken or deformed indicator member to move away from the container without breaking off.
3. Container as defined in Claim 1 or 2 characterized in that said member is attached at two points (31, 32) to the container and, preferably, configured such that the member will break at a point of attachment to the container or at a location between the attachment points when the bracket is moved outwards from its initial position.
4. Container according to any of the preceding claims characterized in that the bracket has a free edge (21) opposite its hinged end, the indicator member being arranged across the bracket along said free edge, preferably fully covering said free edge.
5. Container according to any of the preceding claims characterized in that means (25) are provided

ed on the bracket limiting movement of the bracket inwards against the wall of the container.

6. Container according to any of the proceeding claims characterized in that the container comprises a circumferentially arranged skirt (10), said skirt being located downwards of said flange means (4) and comprising at least one cut-out portion wherein said bracket is positioned. 5
7. Container according to Claim 6 characterized in that side edges (12) of the skirt corresponding to said cut-out portion faces side edges of said bracket with a relatively small gap between the respective facing edges, the indicator member being attached at each end thereof to said side edges of the skirt. 10
8. Container according to any of the proceeding claims characterized in that the bracket has a generally downwards oriented gripping portion (26) with an outwards facing surface, said indicator member extending across said outwards facing surface. 20
9. Container according to any of the proceedings claims in combination with a lid. 25
10. Container according to Claim 9 characterized in that said lid has an edge with inwards protruding gripping means (44) which preferably is adapted to snappingly engage flange means (4) protruding outwardly from the container. 30
11. Container according to any of the proceedings claims characterized in that an initial outwards movement of the bracket from an initial resting position when the bracket has not yet been in use, resulting in breaking or deforming of the indicator member, results in a second locking position with the bracket protruding slightly outwards when the lid is mounted. 35 40

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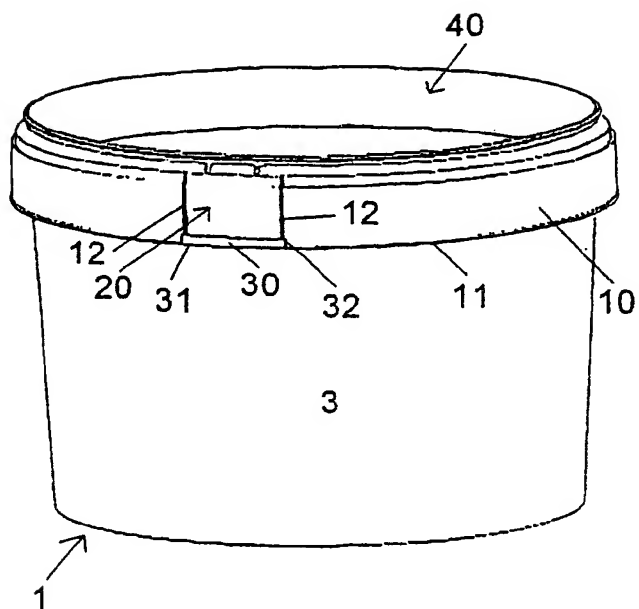


Fig. 1

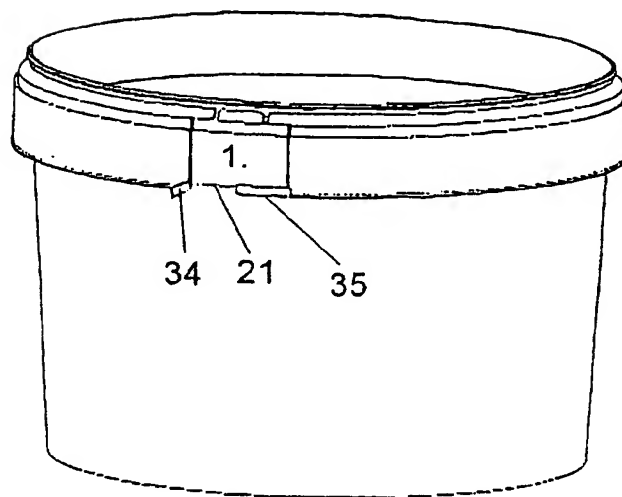


Fig. 2

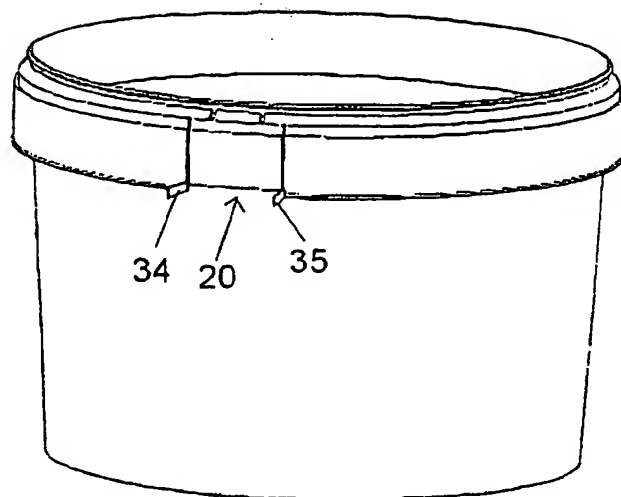


Fig. 3

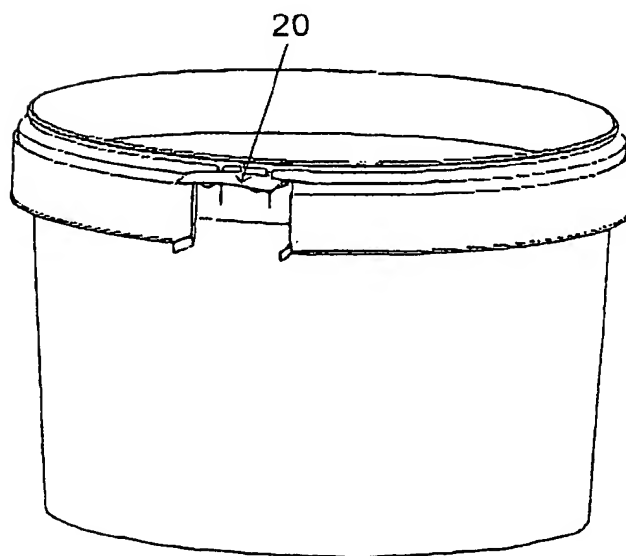


Fig. 4

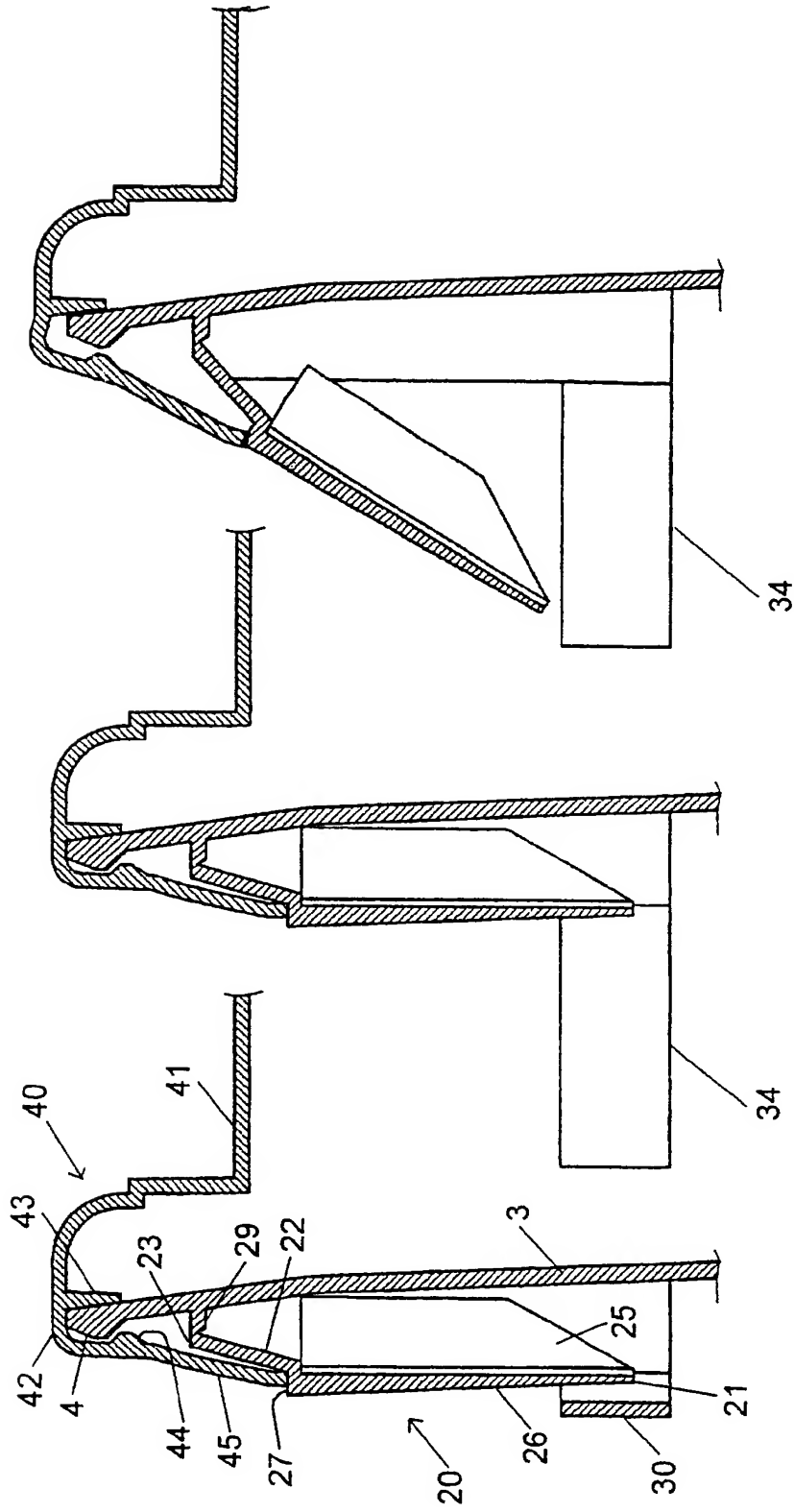


Fig. 7

Fig. 6

Fig. 5



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EUROPEAN SEARCH REPORT

Application Number
EP 00 61 0043

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
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			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
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The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 9 August 2000	Examiner SERRANO GALARRAGA, J
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**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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